COMMONWEALTH of VIRGINIA

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SOLID WASTE FACILITY PERMIT
PERMIT NUMBER 620

Facility Name: Clinch River Power Plant Facility – Ash Pond 1

Facility Type: CCR Surface Impoundment

Latitude: 36° 56' 17"N

Site Location: Russell County, Virginia

Longitude: 82° 11' 45"W

Location Description: The Clinch River Power Plant is located on property owned by Appalachian Power Company, adjacent to the Clinch River, near Carbo, Virginia in Russell County, Virginia. The facility is accessed by State Route 616.

Background: The facility consists of a privately owned/formerly operated surface impoundment (Ash Pond 1) that managed sluiced (or wet) coal combustion residuals (CCR) from the Clinch River Power Plant Facility. The facility and the ponds were constructed in the early 1960's. The facility ceased burning coal in 2015 and still generates power from 2 gas fired steam turbines.

Ash Pond 1 (subdivided into 1A and 1B) is approximately 26 acres and contains approximately 2,110,000 cubic yards of CCR. Acceptance of CCR into the Pond 1 surface impoundment ceased October 14, 2015. The impoundment ceased accepting CCR prior to October 19, 2015, and is considered an inactive CCR surface impoundment under EPA's final rule "Standards for the Disposal of CCR from Electric Utilities" 80 Fed. Reg. 21302 (April 17, 2015) (EPA CCR Rule).

Pursuant to the EPA CCR Rule, on September 18, 2015, Appalachian Power submitted a "Notice of Intent to Initiate Closure of an Inactive Surface Impoundment" to the Director and posted this document on its publicly accessible Internet website. On June 14, 2016, the United States Court of Appeals for the D.C. Circuit ordered a vacatur of the early closure provisions of 40 CFR 257.100, the effect of which was to cause inactive CCR surface impoundments under the EPA CCR Rule to become subject to all requirements applicable to existing surface impoundments under the EPA CCR Rule. EPA also issued a Direct Final Rule extending the otherwise applicable deadlines by 547 days for those inactive CCR surface impoundments that had placed a notification of intent to close in the facility's operating record. The direct final rule became effective on October 4, 2016 81 Fed. Reg. 51802.

The CCR surface impoundments at this facility have been regulated under the Virginia Pollutant Discharge Elimination System (VPDES) Permit No. VA0001015. The facility continues to be subject to VPDES Permit No. VA0001015, including the discharge related to the dewatering of Ash Pond 1.

Ash Pond 2 was approved for closure June 1, 2012, under the VPDES Permit, and notification of completed cap and closure was provided on February 11, 2014. Ash Pond 2 is not subject to the EPA CCR Rule.

THIS IS TO CERTIFY THAT:

Appalachian Power Company d/b/a American Electric Power (AEP)
3464 Power Plant Drive
Cleveland, Virginia 24225

Principal Office:
1 Riverside Plaza
Columbus, OH 43215

is hereby granted a permit to close and maintain the CCR surface impoundment at the Clinch River Power Station in post-closure care as described in the attached Permit Modules I, XI, XII, XIII, XVIII and permit documents incorporated by reference. These Permit Modules and Permit Documents are as referenced hereinafter and are incorporated into and become a part of this permit.

The herein described activity is to close and provide post-closure care in accordance with the terms and conditions of this permit and the plans, specifications, and reports submitted and cited in the permit. The facility shall comply with all regulations of the Virginia Waste Management Board. The permit contains such conditions and requirements as are deemed necessary to comply with the requirements of the Virginia Code, the regulations of the Board, and to prevent substantial or present danger to human health or the environment.

Failure to comply with the terms and conditions of this permit shall constitute grounds for the initiation of necessary enforcement actions.

The permit is issued in accordance with the provisions of § 10.1-1408.1 A, Chapter 14, Title 10.1, Code of Virginia (1950) as amended.

APPROVED: _____

Jeffrey Hurst,
Southwest Regional Director

DATE: _____

PERMIT MODULES
REFERENCE LIST

PERMIT MODULE I – GENERAL PERMIT CONDITIONS

PERMIT MODULE XI – MODIFIED ASSESSMENT/PHASE II MONITORING

PERMIT MODULE XII – CLOSURE

PERMIT MODULE XIII – POST CLOSURE CARE

PERMIT MODULE XVIII – SURFACE WATER MONITORING

PERMIT DOCUMENTS

The documents listed below are hereby incorporated into this permit and the permittee is subject to all conditions contained therein. It is the responsibility of the permittee to properly maintain and update these documents. To the extent any of these documents conflict with the Permit, VSWMR, or the EPA Final Rule, the Permit, VSWMR, or the EPA Final Rule shall prevail.

1. *Closure Plan,* prepared by American Electric Power (AEP), dated revised November, 2016.
2. *Post-Closure Plan*, prepared by AEP, dated revised November 2016.
3. *Pond Closure Drawings*, prepared by AEP, dated revised April 2016 (Attachment A).
4. *Construction Quality Assurance Plan*, prepared by AEP, dated revised April 2016 (Attachment D).
5. *Construction Specifications*, prepared by AEP, dated revised April 2016 (Attachment E).
6. *Groundwater Monitoring Plan*, prepared by Amec Foster Wheeler Environment & Infrastructure, Inc., dated August 25, 2016 (Attachment F).
7. *CCR Closure Plan Compliance,* prepared by Amec Foster Wheeler Environment & Infrastructure, Inc., dated November, 2016 (Attachment H).

PERMIT MODULE I
GENERAL PERMIT CONDITIONS

I.A. EFFECT OF PERMIT

Compliance with the terms of this permit does not constitute a defense to any order issued or any action brought under Sections 10.1-1402(18), 10.1-1402(19), or 10.1-1402(21) of the Virginia Waste Management Act (Chapter 14, Title 10.1, Code of Virginia (1950), as amended); or any other law or regulation for protection of public health or the environment. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstances is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. For purposes of this permit, terms used herein shall have the same meaning as those in the Virginia Waste Management Act, and Part I and other pertinent parts of the Virginia Solid Waste Management Regulations (VSWMR, 9VAC20-81), unless this permit specifically provides otherwise; where terms are not defined in the regulations or the permit, the meaning associated with such terms shall be defined by the generally accepted scientific or industrial meaning of the term or a standard dictionary reference. "Director" means the Director of the Department of Environmental Quality, or his designated or authorized representative.

I.B. DUTIES AND REQUIREMENTS

The permittee shall comply with all conditions of this permit and 9VAC20-81. The effect of this permit is detailed in 9VAC20-81-490, and it shall be the duty of the permittee to ensure the applicable requirements are met. Additionally, the permittee is subject to the recording and reporting requirements detailed in 9VAC20-81-530. In addition to these requirements, the following additional conditions are invoked per 9VAC20-81-430, and shall be complied with:

I.B.1. Noncompliance may be authorized by a schedule of compliance [9VAC20-81-490.D. and 9VAC20-81-490.H.]. Any other permit noncompliance constitutes a violation of Virginia Waste Management Act and is grounds for enforcement action, or for permit revocation, revocation and reissuance, or modification [9VAC20-81-570 and 9VAC20-81-600].

I.B.2 The permittee shall comply with the requirements of this permit and any provisions of RCRA Subtitle D requirements. This permit may not act as a shield against compliance with any part of RCRA or any other applicable federal regulation, state regulation or state law.

I.B.3. In an enforcement action, it shall not be a defense for the permittee that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

I.B.4. In the event of noncompliance with this permit, the permittee shall take all reasonable steps to minimize releases of solid wastes or waste constituents to the environment and shall carry out measures to prevent substantial adverse impacts on human health or the environment.

I.B.5. The permittee shall at all times properly maintain all units (and related appurtenances) which are installed or used by the permittee to achieve compliance with and the conditions of this permit. Proper maintenance includes effective performance, adequate funding, adequate staffing, and training, and adequate laboratory and process controls, including appropriate quality assurance/quality control procedures. This provision requires the operation of back-up or auxiliary equipment only when necessary to achieve compliance with the conditions of this permit.

I.B.6. The permittee shall furnish to the Director, within a reasonable time, any relevant information that the Director may request to determine compliance with this permit, regulations or the Act. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit by the date specified in the request.

I.B.7. The permittee shall allow the Director, or an authorized representative, at a reasonable time, upon the presentation of appropriate credentials, to:

I.B.7.a. Enter the permitted facility where a regulated unit or activity is located or conducted, or where records must be kept under the conditions of this permit;

I.B.7.b. Have access to and copy any records that must be kept under the conditions of this permit;

I.B.7.c. Inspect any unit, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and,

I.B.7.d. Sample or monitor, for the purposes of assuring permit compliance or as otherwise authorized by Virginia Waste Management Act, any substances or parameters at any location within his control.

I.B.8. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample to be analyzed must be the appropriate method from the latest edition of Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, EPA Publication SW-846, if available.

Laboratory samples shall be analyzed in accordance with 1 VAC 30-45, Certification for Noncommercial Environmental Laboratories, or 1 VAC 30-46, Accreditation for Commercial Environmental Laboratories.

I.B.9. This permit is not transferable to any person, unless approved by the Director. The Director may require modification or revocation and reissuance of the permit pursuant to 9VAC20-81-490.G.

I.B.10. Specifications for all drainage media should specify that the material shall contain no greater than 15% calcium carbonate equivalent. Department literature regarding research on leachate collection media indicates that weight loss greater than 15% results in an unacceptable loss of performance. If a greater percentage is specified or allowed, a demonstration that performance is not adversely affected must be provided to the Department for review and approval.

I.B.11 Recirculation of collected leachate shall not be allowed.

I.B.12. The closure cost estimate must reflect the maximum cost of closure at all times. The owner has the responsibility to maintain the closure and post closure cost estimate and associated financial assurance funding as conditions change.

I.B.13. Land-clearing, excavation, and construction activities that involve the disturbance of wetlands or streams shall not commence without authorization from the Virginia Water Protection (VWP) Program and/or Army Corps of Engineers.

I.B.14. The facility shall maintain and follow an approved Erosion & Sediment Control Plan for all land-disturbing activities in accordance with the Erosion and Sediment Control Regulations, 9 VAC 25-840 and VA00001015 as applicable.

I.C. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

The permittee shall maintain a complete copy of the Solid Waste Permit and incorporated Permit Documents at the facility, or another location approved by the director, until post-closure is complete and certified by a professional engineer, and shall maintain amendments, revisions, and modification to these documents. In addition, the facility shall maintain the following additional documents:

I.C.1. Detailed, written estimate, in current dollars, of the cost of closing the facility, post-closure care and corrective action measures.

I.C.2. All other documents/records required and applicable from the following:

I.C.2.a Monitoring records from groundwater monitoring and surface water monitoring.

I.C.2.b. Inspection records as required from construction/installation, closure, post-closure inspection requirements.

I.C.2.c. Construction quality assurance reports, record drawings and engineers certifications for all final cover construction.

I.C.3. All records required by 40 CFR 257.105. These records shall be maintained in the written operating record for at least five years following the date of each occurrence, measurement, maintenance, corrective action, report, record or study unless another timeframe is prescribed in 40 CFR 257.105.

I.D. DOCUMENTS TO BE SUBMITTED

In addition to the documents/records/reports to be submitted per the requirements of this permit or 9VAC20-81, the permittee shall also submit the following documents to the Director according to indicated schedules:

I.D.1. The as-built plans of all new groundwater wells shall be submitted as these wells are installed. Information to be included on the as-built plans shall include, but is not limited to, the total depth of the well, the surveyed elevations of the top of casing and ground surface (or apron), and the length and location of the screened interval and annular space seal. All dimensions are to be shown on well construction schematics.

I.D.2. The facility shall submit all notifications required by 40 CFR 257.106 to the DEQ Director before the close of business on the day the notification is required to be completed.

I.E. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE DIRECTOR

All reports, notifications, or other submissions which are required by this permit to be sent or given to the Director should be sent to:

Virginia Department of Environmental Quality
Division of Land Protection & Revitalization
Southwest Regional Office
355-A Deadmore Street
Abingdon, VA 24210

If the report, notification, or other submission is sent or given to the Director to comply with 40 CFR 257.106, such report, notification, or other submission shall be sent or given to the contact above in addition to the Director.

I.F. SITE SPECIFIC CONDITIONS

The provisions of this section are in addition to the permit conditions and regulatory requirements and are specifically developed for this facility. The permittee shall comply with all conditions of this section, as follows:

I.F.1. Groundwater monitoring at this facility shall commence under the Modified Assessment Groundwater Monitoring Program as detailed in Module XI of this permit.

I.F.2. Surface water monitoring at this facility shall commence under the Surface Water Monitoring Requirements as detailed in Module XVIII of this permit.

I.F.3 The permittee shall maintain a publically accessible Internet site (CCR Web site), titled "CCR Rule Compliance Data and Information" as required by 40 CFR 257.107. The applicable information as specified in 40 CFR 257.107 (e) through (i) must be posted to the CCR Web site within 30 days of placing the pertinent information, as required by 40 CFR 257.105, in the facility's operating record. The information must remain on the CCR Web site for at least five years following the date on which the information was first posted, unless another timeframe is prescribed in 40 CFR 257.107.

I.F.4. Ash Pond 1 is subject to the to the U.S. Environmental Protection Agency's EPA's final rule "Standards for the Disposal of CCR from Electric Utilities" (EPA CCR Rule) (as amended) and as incorporated into the VSWMR. The permittee shall comply with these provisions. To the extent a conflict may exist or arise between the requirements of the EPA CCR rule, other provisions of the VSWMR, or this permit; the facility shall comply with the more stringent of the requirements.

I.F.5. In accordance with Condition I.F.4., the permittee shall comply with the applicable requirements and deadlines as established by 40 CFR 257.100(e) for Ash Pond 1.

I.F.6. Within 90 days of permit issuance, the permittee shall submit a post-closure care plan, post-closure care cost estimate, and groundwater monitoring plan for the closed Ash Pond 2. Such documents shall be prepared in accordance with the VSWMR.

PERMIT MODULE XI
MODIFIED ASSESSMENT/PHASE II MONITORING REQUIREMENTS

The Assessment/Phase II monitoring program is designed to recognize when waste unit impacts to the uppermost aquifer have exceeded groundwater protection standards and thus trigger potential groundwater remediation actions. Actions undertaken shall be consistent with the requirements of 9 VAC 20-81-250 of the VSWMR and this Permit Module as well as applicable requirements of 40 CFR 257. The Assessment/Phase II Monitoring Program is designed to meet the detection and assessment monitoring requirements of 40 CFR 257. Where a groundwater requirement is defined in both the applicable provisions of 40 CFR 257 as well as within the VSWMR, the stricter of the referenced requirements shall apply.

XI.A. GROUNDWATER COMPLIANCE POINT

XI.A.1. Uppermost Aquifer

XI.A.1.a Monitoring wells must be installed within the uppermost aquifer on site and shall be screened at depths appropriate to monitor all preferential contaminant migration pathways identified during XI.A.1.c below.

XI.A.1.b Monitoring wells shall be screened solely within the saturated portion of the aquifer such that at no time during the life of the sampling program, are portions of the well screen exposed to the unsaturated zone or capillary fringe zone, above the zone of saturation.

XI.A.1.c Characterization of the uppermost aquifer must be determined by completion of a site specific hydrologic investigation prior to monitoring wells being installed onsite. This hydrologic investigation must be completed in a manner consistent with available EPA Resource Conservation and Recovery Act (RCRA) subtitle C, D and/or CCR technical guidance documents.

XI.A.2. Monitoring Well Locations

All wells in the monitoring network must be located at, or as close as practicable to, the CCR unit boundary and be screened within the zone of saturation of the aquifer. Use of nested well pairs screened at different depths below ground surface may be required to monitor all potential contaminant migration pathways identified under XI.A.1.b.

XI.A.3. Location Restrictions

XI.A.3.a No groundwater point of compliance monitoring well can be located outside of the permitted facility boundary.

XI.A.3.b Newly installed monitoring wells and replacement wells shall not be screened within CCR material.

XI.B. MONITORING NETWORK REQUIREMENTS

XI.B.1. The network shall contain no fewer than one upgradient, and three downgradient wells.

XI.B.2. Installation, Operations and Maintenance

All wells shall be installed, operated and maintained in a manner which allows them to operate as designed during the life of the monitoring program.

XI.B.2.a Wells requiring replacement due to non-performance shall be reported to the Department within 30 days of recognizing the non-performance. The notification shall include a site plan depicting the proposed location for the replacement well(s) for Department review.

XI.B.2.b Wells that require replacement must be replaced prior to the next regularly scheduled groundwater sampling event unless the Director has granted an extension.

XI.B.2.c Any wells that require abandonment shall be sealed and abandoned in accordance with existing EPA Resource Conservation and Recovery Act (RCRA) guidance as well as any applicable state or local requirements.

XI.B.2.d No well onsite shall be abandoned without prior approval from the Director.

XI.B.3. Well Designations

The following wells shall be included in the groundwater monitoring network. Number designations including (d) and (s) shall be used when nested pairs are screened as deep (d) or shallow (s) sampling horizons.

Upgradient Wells	Downgradient Wells	
MW-1601	MW-1603	MW-1604
MW-1602	MW-1605	MW-1606
MW-1609	MW-1607	MW-1608
MW-1610	MW-0913D	

XI.C. AQUIFER INFORMATION

XI.C.1. Data Acquisition - Requirements

XI.C.1.a Static groundwater elevations shall be:

XI.C.1.a.(1) measured in all monitoring wells prior to purging.

XI.C.1.a.(2) measured to an accuracy of 0.01 foot.

XI.C.1.a.(3) measured each time groundwater is sampled on site.

XI.C.1.a.(4) obtained from all wells in the network within a single 24 hour period to avoid temporal variations/fluctuations in the groundwater table.

XI.C.1.b. Groundwater flow rate and direction shall be determined each time groundwater is sampled on site via a method accepted for use in EPA RCRA groundwater programs.

XI.C.2. Data Acquisition - Response

XI.C.2.a. The Permittee shall evaluate the function of each monitoring network well each time groundwater is sampled. If the evaluation shows that one or more of the well(s) no longer functions in a manner that meets performance requirements of the VSWMR and 40 CFR 257, the Permittee shall:

XI.C.2.a.(1) Within 30 days of recognizing the non-performance, notify the Department of the need to modify the number, location, or depth of the monitoring wells, and provide for Department review, proposed locations for new (replacement) monitoring wells keyed to a site plan.

XI.C.2.a.(2) Complete additions or modifications to the network, prior to the next regularly scheduled groundwater sampling event, unless an extension has been granted by the Director for meeting the monitoring system compliance requirements.

XI.D. SAMPLING ACTIONS

The Permittee shall:

XI.D.1 utilize a groundwater monitoring program and sampling actions that meet the requirements of the VSWMR, 40 CFR 257.90-95 and this Module.

XI.D.2 collect and analyze unfiltered samples of groundwater from each monitoring well sampled consistent with 40 CFR 257.93.(h).(2).(i).

XI.D.3 utilize EPA SW-846 analytical methods (as amended) conducted at a VELAP accredited laboratory,

XI.D.4 provide the Department final laboratory results as total metals (parts per billion) for all metals constituents listed.

XI.D.5 provide final results showing total Chromium and (speciation of) total hexavalent Chromium.

XI.E. SAMPLING FREQUENCY

The Permittee shall, during the active life and post-closure care periods, sample and analyze groundwater from all monitoring wells on a semi-annual basis, which shall be an interval corresponding to approximately 180 days. For the purposes of scheduling monitoring activities, sampling within 30 days of the 180-day interval will be considered 'semiannual'.

XI.F. SAMPLING LIST

XI.F.1. All 40 CFR 257 Appendix III constituents.

XI.F.2. All 40 CFR 257 Appendix IV constituents.

XI.F.3 VSWMR Table 3.1 constituents Copper, Cyanide, Nickel, Silver, Sulfide, Tin, Vanadium, and Zinc.

XI.F.4. Speciation of Chromium (Total Chromium and Hexavalent Chromium).

XI.F.5. The sampling list shall be included in the site *Groundwater Monitoring Plan* and shall be updated by the owner or operator as directed by the Director.

XI.G. DETERMINATION OF BACKGROUND & GPS

XI.G.1 The Permittee shall establish site-specific background values for the constituents of XI.F in a manner consistent with EPA requirements within 40 CFR 257.93.(d) and 94.(b).

XI.G.2 Groundwater Protection Standards (GPS) shall be established using the process EPA defined within 40 CFR 257.95.(h) for constituents contained under XI.F.2, XI.F.3 and Boron.

XI.G.3 Groundwater Protection Standards shall be updated as follows:

XI.G.3.a Federal Maximum Contaminant Level-based GPS, immediately upon promulgation of a new or revised Federal MCL.

XI.G.3.b Background-based GPS, every two years such that the eight most recent background well sampling results shall replace the oldest eight background well sampling results.

XI.G.4 Use of risk-based GPS shall not be allowed.

XI.G.5 A table of GPS shall be included in the site *Groundwater Monitoring Plan* and shall be updated as directed by the Director.

XI.H. STATISTICAL PROCEDURES

When evaluating the groundwater sampling event results, the Permittee shall:

XI.H.1 Have a qualified professional engineer certify the selected statistical method used by the Permittee is appropriate for evaluating the groundwater monitoring data consistent with 40 CFR 257.93(f)(6). The certification must include a narrative description of the statistical method selected to evaluate the groundwater monitoring data.

XI.H.2 Within 30 days of completion of the laboratory analysis for each semiannual sampling event, determine whether or not there is a statistically significant increase over site background and GPS for each monitoring constituent using an appropriate statistical method.

XI.H.3 For the purpose of this Permit, laboratory analysis is considered complete upon issuance of the final analytical report under laboratory signature.

XI.H.4 If there is a statistically significant increase (SSI) over Facility-specific GPS, the Permittee will notify the DEQ of the SSI over GPS within 44 days of issuance of the laboratory report identifying the constituent(s) which exceed GPS and noting whether the facility intends to identify an Alternate Source for the SSI or begin the initial steps toward groundwater Corrective Action.

XI.I. RECORD-KEEPING REQUIREMENTS

XI.I.1 The Permittee shall comply with the applicable record-keeping and public record internet requirements of 40 CFR 257.

XI.I.2 The Permittee shall retain all records identified under 9 VAC 20-81-250.E.1 as well as 530.B.1 and B.2 throughout the closure and post-closure care period. The records shall be retained within an operating record at the facility or at an alternate location approved by the Director.

XI.I.3 The Regional Director shall be copied on any groundwater report, notification, request, demonstration, certification or documentation submitted pursuant to 40

CFR 257 or 9 VAC 20-81-250.

XI.J. REPORTING REQUIREMENTS

The Permittee shall meet all the reporting and notification requirements of 40 CFR 257 and 9 VAC 20-81-250.E.1 as well as 530.B.1 and B.2 throughout the closure and post-closure care periods.

XI.J.1. *Groundwater monitoring reports*

XI.J.1.a The Annual groundwater monitoring report shall be due no later than 120 days from the completion of sampling and analysis conducted for the second semi-annual event and no later than January 31 of the following calendar year. The Annual report shall include at a minimum the content found under 9 VAC 20-81-250.E.2.a and 40 CFR 257.90(e)(1-5) and shall be submitted in a format consistent with existing DEQ Submission Instructions.

XI.J.1.b. A Semi-annual report shall be due no later than 120 days from the completion of sampling and analysis conducted for the 1st semi-annual groundwater sampling event. The Semi-annual report shall include at a minimum the content found under 9 VAC 20-81-250.E.2.b and shall be submitted in a format consistent with existing DEQ Submission Instructions.

XI.J.2. *Facility Background Determination Report*

XI.J.2.a Within 30 days of initially establishing background, re-establishing background due to the installation of new monitoring wells or a change in sampling technique, the Permittee shall report the background values and statistical computations forming the basis for those values in a report entitled *Facility Background Determination Report*.

XI.J.2.b The background determination results shall be submitted in the timeframe defined under 9 VAC 20-81-250.C.3.b.(2).

XI.J.3. *Well Installation Report*

Within 44 days of well completion, the Permittee shall supply the Director a *Well Installation Report* containing the well number, surveyed elevation, boring log, casing length, total depth, and a completion diagram for each monitoring well, along with a certification from a qualified professional engineer that the monitoring wells have been installed in accordance with the submitted plans.

XI.J.4. *Well Abandonment Report*

Within 44 days of well abandonment, the Permittee shall supply the Director a *Well Abandonment Report* containing information including field methods utilized, and a certification from a qualified professional engineer verifying the well abandonment activities met all applicable requirements.

XI.J.5. *Groundwater Protection Standards*

The Permittee shall place the GPS listing in the operating record and update that record as needed upon any changes in GPS values.

XI.K. NOTIFICATION REQUIREMENTS

XI.K.1 *GPS SSI Notifications* shall be submitted to the Director within 44 days of issuance of the laboratory report and shall indicate which groundwater constituent has shown an SSI over Facility-specific GPS.

XI.K.2 *Well Non-Performance Notifications* shall be submitted to the Director within 30 days of recognizing the non-performance issue.

XI.K.3 *Off-site Plume Notifications* shall be submitted to the affected landowner and copied to the Director within 15 days of identifying constituents which exceed their GPS.

XI.L. MISCELLANEOUS ALLOWANCES

XI.L.1 Use of Alternate Site Background. The Permittee may request the Director allow site background to be developed using wells that are not hydrologically upgradient of the disposal unit as long as the request addresses the technical criteria contained in VSWMR and 40 CFR 257 and is certified by a qualified professional engineer. Until such time as Director approval is obtained, background shall be determined by sampling wells which are upgradient of the disposal unit.

XI.L.2 Use of Alternate Statistical Method. The Permittee may request the Director allow the use of an Alternate Statistical Method as long as the Permittee can demonstrate the alternate method can meet the technical criteria defined under 9 VAC 20-81-250.D.2 and 40 CFR 257.93(g). Until such time as Director approval is obtained, the statistical test(s) applied to site groundwater data shall be compliant with 9 VAC 20-81-250.D.1 and 40 CFR 257.93(f)(1-5). Whichever method is approved for use at the site, the method should be listed in the facility *Groundwater Monitoring Plan*.

XI.L.3 Verification Sampling. The Permittee, at any time within 30 days of receipt of the laboratory report for a semi-annual sampling event, may obtain verification samples. Undertaking verification sampling shall not alter the timeframes associated with determining or reporting a statistically

significant increase.

XI.L.4 Data Validation. The owner or operator may at any time within the 30 day statistical determination period undertake third-party data validation of the analytical data received from the laboratory. Undertaking such validation efforts shall not alter the timeframes associated with determining or reporting a statistically significant increase.

XI.M. MISCELLANEOUS DEMONSTRATIONS

To address an exceedance which is the result of something other than a release of CCR constituents, the Permittee may submit a report entitled *Alternate Source Demonstration*, certified by a qualified professional engineer for review and approval by the Director, within 90 days of providing the initial SSI notification.

XI.M.1 If a successful demonstration of an alternate source for the noted increase is made by the Permittee and approved by the Director within the 90 day timeframe, the Permittee may continue in the applicable monitoring program as defined in this Permit Module.

XI.M.2 If a successful demonstration of an alternate source for the noted increase is not made by the Permittee within the 90 day timeframe, the Permittee shall take actions required under 9 VAC 20-81-260 and 40 CFR 257 within the required timeframes.

XI.N. PERMIT RELATED DOCUMENTS

The Permittee must have a plan that includes detailed instructions concerning groundwater monitoring. These detailed groundwater monitoring instructions must at a minimum cover the items listed under 9 VAC 20-81-250.A.4.a and other applicable information under 9 VAC 20-81-250. The document containing these instructions, called the *Groundwater Monitoring Plan*, shall be placed in the operating record.

It shall be the responsibility of the Permittee to update this monitoring plan as needed, which may include actions otherwise defined under 9 VAC 20-81-600.A – F, if changes to the monitoring program have taken place since original Plan development.

XI.O. LIMITATIONS/AUTHORITIES

XI.O.1 The groundwater monitoring and reporting requirements set forth here are minimum requirements. The Director may require, by amending the Permit, any owner or operator to install, operate, and maintain a groundwater monitoring system and program that contains requirements more stringent than those of the Regulations whenever it is determined

that such requirements are necessary to prevent significant adverse effects on public health or the environment.

XI.O.2 Should information contained in a Permittee authored *Groundwater Monitoring Plan* conflict with any requirement or condition of this Module, the Module condition shall prevail over the language in the Permittee supplied document.

XI.O.3 When the Permittee recognizes a failure to submit any relevant facts or has submitted incorrect information in any groundwater monitoring report to the Director, he shall, within 7 days, submit such omitted facts or the correct information with a full explanation.

PERMIT MODULE XII
CLOSURE

XII.A. CLOSURE PLAN AND CLOSURE PLAN MODIFICATION

XII.A.1. The owner or operator shall maintain a written closure plan in accordance with 9 VAC 20-81-160.B.1. and 40 CFR 257.102(b).

XII.A.2. The closure plan shall be amended as required by 40 CFR 257.102(b)(3). All amended closure plans shall contain a written certification by a professional engineer that the plan amendment meets the requirements of 40 CFR 257.102 (b)(4).

XII.B. TIMEFRAMES ASSOCIATED WITH CLOSURE

The owner or operator shall complete closure in accordance with the timeframes in 40 CFR 257.102 and 40 CFR 257.100(e).

XII.C. FINAL COVER SYSTEM

The surface impoundment final cover design for Surface Impoundment Ash Pond 1 profile from top to bottom is as follows:

- 6 inches vegetative cover soil;
- 18 inches compacted soil;
- Geocomposite Drainage Net (GDN) consisting of a HDPE geonet with nonwoven geotextile on either side; and
- 30-mil PVC Geomembrane Liner.

This final cover system is considered an alternative final cover system in accordance with 40 CFR 257.102.

The closure design includes offsite diversion channels to prevent water run-on onto the closed pond cap. Run-off from the cap is directed to the diversion channels. Water infiltrating the 24 inch soil cover is intercepted by the double-sided GDN, then gravity flows to the collection channels featured with corrugated drainage pipes. The water is conveyed via the drainage pipes to diversion channels.

XII.D. CLOSURE CERTIFICATION AND APPROVAL

Following construction of the final cover system, the facility shall submit:

XII.D.1. Notification and certification, signed by a registered professional engineer, verifying that closure has been completed in accordance with the permit, approved plans, specifications, and 40 CFR 257.102(f)(3). The notification and certification shall include the results of the CQA/QC requirements under 9VAC20-81-130.Q.1.b.(6).

XII.D.2. Certification, signed by a registered professional engineer, shall be submitted verifying that closure has been completed in accordance with the requirements of 9VAC20-81-160.D.5.a. through 5.c. and 40 CFR 257.102, which require posting a sign at the facility entrance and erecting suitable barriers to prevent access; submitting a survey plat to the local land reporting authority; and recording a notation on the deed to the facility property.

PERMIT MODULE XIII
POST-CLOSURE CARE

XIII.A. POST-CLOSURE CARE REQUIREMENTS

XIII.A.1. The facility shall conduct post-closure care of Ash Pond 1 in accordance with the approved Post-Closure Care Plan, the VSWMR, and 40 CFR 257.104.

XIII.A.1.a. The final cover system shall be maintained in accordance with 9 VAC 20-81-170.A.1.a and 40 CFR 257.104(b)(1).

XIII.A.1.b. The groundwater monitoring system shall be maintained and groundwater shall be monitored in accordance with 40 CFR 257.90 through 257.98, Module XI, the approved Groundwater Monitoring Plan, and the respective groundwater permit documents as applicable. The groundwater monitoring system shall be inspected at a rate consistent with the system's monitoring frequency.

XIII.A.1.c. Surface water shall be monitored in accordance with Module XVIII and the approved Surface Water Monitoring Plan.

XIII.A.2. Post-closure Care Plans and subsequent amendments shall meet the requirements of 9 VAC 20-81-170.A.2. and A.3 and 40 CFR 257.104(d) and shall be submitted to the department for review and approval by the director. All plans, once approved, shall be maintained in the facility's operating record as required by 40 CFR 257.105 (i)(4).

XIII.B. POST-CLOSURE PERIOD

XIII.B.1. Post-closure care shall be conducted for 30 years. If, at the end of the post-closure care period, Ash Pond 1 is operating under groundwater assessment monitoring, the owner or operator shall continue to conduct post-closure care until the owner or operator returns to detection monitoring.

XIII.B.2. The facility shall continue post-closure care and monitoring until such time that the department approves termination of the post-closure care and/or monitoring activity. Post-closure care shall not be terminated unless the requirements of 9 VAC 20-81-170.C. and 40 CFR 257.104(c)(2) are met.

XIII.C. CERTIFICATION OF COMPLETION OF POST-CLOSURE CARE

Not less than 180 days prior to the completion of the post-closure monitoring and maintenance period as prescribed by the Board's regulations or by the Director, the owner or operator shall submit to the Director:

XIII.C.1. Certification, signed by the owner or operator and a professional engineer licensed in the Commonwealth, verifying that post-closure monitoring and maintenance have been completed in accordance with the facility's Post-closure Care Plan; and

XIII.C.2. An evaluation prepared by a professional engineer or professional geologist licensed in the Commonwealth, which assesses and evaluates the landfill's potential for harm to human health and the environment in the event that post-closure monitoring and maintenance are discontinued.

If the Director determines that continued post-closure monitoring or maintenance is necessary to prevent harm to human health or the environment, he shall extend the post-closure period for such additional time as the Director deems necessary to protect human health and the environment and shall direct the owner or operator to submit a revised post-closure plan and to continue post-closure monitoring and maintenance in accordance therewith. Requirements for financial assurance shall apply throughout such extended post-closure period.

XIII.D. POST-CLOSURE CARE NOTIFICATION

The owner or operator shall provide a notification in accordance with 40 CFR 257.104(e) upon completion of the post-closure period.

PERMIT MODULE XVIII
SURFACE WATER MONITORING REQUIREMENTS

This monitoring program is designed to determine if there is an impact to surface water that may be occurring as a result of potential groundwater to surface water exchange.

Surface Water Monitoring at this facility will take place under the program described herein and the actions undertaken shall be consistent with VSWMR, WQS, and VPDES regulations as applicable. The Permittee must maintain a surface water monitoring program that meets the requirements of this module and outline that program in the *Surface Water Monitoring Plan*.

Nothing in this permit module authorizes the Permittee to have an unauthorized discharge in contravention of State Water Control Law or accompanying regulations.

The *Surface Water Monitoring Plan* shall be developed in accordance with these requirements and submitted to the Department for approval within 60 days of the permit issuance and shall be implemented within 30 days of approval by the Department.

XVIII.A. SAMPLING LOCATIONS

XVIII.A.1 A minimum of four sample locations shall be identified and approved by the Department. At a minimum, the locations shall be near-shore of the property where groundwater potentially could intersect with surface water and represent results from all units located at the facility. These locations:

XVIII.A.1.a shall be noted on a site facility map and identified with GPS coordinates.

XVIII.A.1.b may be augmented by additional sampling locations as needed, based on the results of the surface water sampling program, and to ensure potential impacts from groundwater to surface water are identified.

XVIII.A.1.c. shall be permanently marked or flagged at the nearest shore to allow easy identification.

XIV.A.2 Sampling locations which do not contain a sufficient surface water column within which to sample will not be required to be re-sampled during the compliance period. However, sampling locations which have insufficient yield for 2 consecutive monitoring periods shall be evaluated for relocation and a new location proposed for approval by the Department.

XVIII.B. SAMPLING ACTIONS

The Permittee shall:

XVIII.B.1. Collect samples from the surface water columns at the designated locations identified in XVIII.A. The samples shall be taken at mid-depth of the water column. Tidal samples shall be collected at low-tide if feasible.

XVIII.B.2. Conduct the surface water column sampling actions in a manner equivalent to the QA/QC procedures specified in the most current version of the Department's Standard Operating Procedures Manual, Water Monitoring and Assessment Program, Section 4.8 - Collection of Trace Elemental Samples (Clean Metals), and others as applicable.

XVIII.B.3. Analyze surface water column samples in accordance with methods approved by the Department and performed by a VELAP accredited laboratory.

XVIII.B.4. Provide final results of surface water column samples as dissolved metals.

XVIII.C. SAMPLING FREQUENCY

XVIII.C.1. The Permittee shall, during the closure and post-closure care periods, sample surface water following a calendar quarterly schedule.

XVIII.C.2. The length of the quarterly sampling period shall be an interval corresponding to approximately 90 days. For the purposes of scheduling monitoring activities, sampling within 15 days of the 90-day interval will be considered 'quarterly'.

XVIII.C.3. The Permittee shall sample more frequently when requested by the Department.

XVIII.D. SAMPLING CONSTITUENTS

XVIII.D.1. The Permittee shall sample for the following constituents: Antimony, Arsenic, Boron, Cadmium, Chromium (total, III, and VI), Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, and Zinc.

XVIII.D.2. Additional indicator and field collection data shall be provided including hardness, pH, and temperature.

XVIII.D.3. Any constituent not listed in XVIII.D.1. that has had an exceedance of a Groundwater Protection Standard established in Permit Module XI within the last three, consecutive years shall be included.

XVIII.D.4. Any additional constituents or parameters when notified in writing by the Department.

XVIII.E. DETERMINATION OF APPLICABLE STANDARDS FOR COMPARISON

Sampling results from surface water column testing of the constituents identified in XVIII.D.1. shall be compared to the lowest of the applicable standards established by 9 VAC 25-260-140. For any constituent not listed in XVIII.D.1. that has an exceedance of a Groundwater Protection Standard established in Permit Module XI, the constituent shall be compared to the Groundwater Protection Standard.

XVIII.F. REPORTING REQUIREMENTS

XVIII.F.1. After each quarterly sampling event, the permittee shall submit a surface water monitoring report under separate cover to the Department no later than 60 days from the completion of sampling and analysis unless as allowed under a director-approved extension. The surface water monitoring report shall include:

XVIII.F.1.a. Signature page certifying the results by a facility representative.

XVIII.F.1.b Facility name and permit number.

XVIII.F.1.c. Statement noting whether or not all sampling locations were sampled and if so, the reason a sample was not obtained or reported. If the sampling location did not contain sufficient water column for sampling, a statement noting the number of occurrences of lack of sufficient water column and, based upon the number of occurrences, a new proposed sampling location.

XVIII.F.1.d. Copy of the full Laboratory Analytical Report including dated signature page from laboratory manager or representative.

XVIII.F.2. The Permittee shall retain all surface water monitoring records throughout the closure and post-closure care period. The records shall be retained, in paper or electronic form, at the facility, or an alternate location approved by the Director, within the facility's operating record and made available to the Department upon request.

XVIII.G. NOTIFICATION REQUIREMENTS

Verified laboratory results indicating surface water column results above a standard identified in XVIII.E shall be submitted to the Director within 30 days of issuance of the laboratory report results.

XVIII.H. REQUIRED ACTIONS

XVIII.H.1. Within 60 days of submitting a notification in XVIII.G., the permittee shall submit a *Surface Water Investigation Report*. The following information shall be assessed in the investigation and discussed in the report:

XVIII.H.1.a. Any error in the collection of the sample that may be identified.

XVIII.H.1.b. Additional conditions and information regarding the surface water at the time of collection.

XVIII.H.1.c. Whether the constituent(s) were detected in groundwater monitoring sampling results.

XVIII.H.1.d. The identified or potential source(s) of the observed impacts, including any potential facility activities.

XVIII.H.1.e. Additional sampling, if any, undertaken by the permittee.

XVIII.H.1.f. Mitigation action or other actions, if any, undertaken by the permittee.

XVIII.H.2. The permittee, depending on the results of this investigation and as directed by the Department, may be required to conduct additional monitoring, additional source investigation, sampling including interstitial sampling or sediment sampling as feasible, or assessment measures

including fish tissue sampling.

XVIII.H.3. The permittee shall submit an action plan for Department review and approval, or take other action in accordance with Permit Module XI when required by the Department in response to the *Surface Water Investigation Report*.

XVIII.I. PERMIT DOCUMENTS

The Department-approved *Surface Water Monitoring Plan* shall be placed in the facility's operating record. This *Surface Water Monitoring Plan* shall include at minimum the measures required for the facility to accomplish the monitoring required by this module.

XVIII.I.1 It shall be the responsibility of the Permittee to update this monitoring plan as needed, which may include actions otherwise defined if changes to the monitoring program have taken place since original Plan development.

XVIII.I.2. Should information contained in a Permittee authored *Surface Water Monitoring Plan* conflict with any requirement or condition of this Module, the Module condition shall prevail over the language in the Permittee supplied document.

XVIII.I.3 The Permittee shall review and modify the surface water monitoring plan within 30 days of notification of the agency of required/requested modifications.

XVIII.I.4. When the Permittee recognizes a failure to submit any relevant facts or has submitted incorrect information in any surface water monitoring report to the Director, he shall, within 7 days, submit such omitted facts or the correct information with a full explanation.

XVIII.J. LIMITATIONS/AUTHORITIES

The surface water monitoring and reporting requirements set forth here are minimum requirements. The Director may require, by amending the Permit, any owner or operator to maintain a surface monitoring system and program that contains requirements more stringent than those of the Regulations and in this current permit module whenever it is determined that such requirements are necessary. Nothing in this permit module limits the Director or the Department from requiring additional actions consistent with applicable laws and regulations. Nothing in this permit module limits or alters the requirement to conduct surface water monitoring in accordance with any groundwater corrective action.